DIRECT TESTIMONY OF

JOSEPH K. TODD

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2011-2-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION WITH SOUTH CAROLINA ELECTRIC & GAS COMPANY ("SCE&G" OR "COMPANY").

A. My name is Joseph K. Todd, and my business address is 220 Operation Way, Cayce, South Carolina 29033. I am employed by South Carolina Electric & Gas Company as General Manager, Fossil & Hydro Operations.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND YOUR BUSINESS EXPERIENCE.

A. I earned a Bachelor of Science Degree in Civil Engineering from Clemson University in 1980. I began my career with Duke Power that same year working as a structural engineer for several nuclear plants. I started working with SCE&G in 1981 as a Structural Engineer for V.C. Summer Nuclear Station in Jenkinsville, South Carolina. In this capacity, I participated in the startup and initial operation of this facility and continued working at V.C. Summer until 1990. In 1990, I transferred to the Fossil/Hydro division of SCE&G and assumed a project

management role for initial work on the Cope project along with a number of other environmental projects. I also served as Assistant Manager of McMeekin Station from 1995 to 1998 before returning to a project management role for several environmental projects including Selective Catalytic Reduction installations at the Williams and Wateree Stations. Subsequent roles included Business Manager of the Company's power operations on the Savannah River Site, and Manager of Fossil/Hydro Outage Planning. I assumed the role of General Manager, Fossil & Hydro Operations in February of 2007. In this position, I report to the Vice President of Fossil Hydro Operations.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to review the operating performance of SCE&G's Fossil/Hydro units and South Carolina Generating Company's ("GENCO") Williams Electric Generating Station ("Williams Station") during the period January 1, 2010 through December 31, 2010 ("Review Period").

Q. PLEASE GIVE A SHORT DESCRIPTION OF SCE&G'S FOSSIL AND HYDRO ELECTRIC FACILITIES.

A. SCE&G operates ten (10) coal-fired fossil fuel units (2,429 Megawatts ("MW")), eight (8) combined-cycle gas turbine/steam generator units (gas/oil fired, 1,330 MW), sixteen (16) peaking turbines (355 MW), four (4) hydroelectric generating plants (221 MW), and one Pumped Storage Facility (576 MW). In

addition, SCE&G owns an electric generator at a biomass cogeneration facility which produces an output of 90 MW using a mixture of wood products and coal as its fuel source. The total net non-nuclear summer generating capability rating of these facilities is 5,001 MW. The ratings stated in this testimony are updated at least on an annual basis.

Q. PLEASE DESCRIBE GENCO AND ITS RELATIONSHIP TO SCE&G.

A. GENCO was incorporated October 1, 1984, as a SCANA subsidiary. GENCO owns the Williams Station. GENCO sells to SCE&G the entire capacity and output from the Williams Station under a Unit Power Sales Agreement approved by the Federal Energy Regulatory Commission. Hereafter, when I refer to SCE&G's fossil steam plants, I include Williams Station.

Q. HOW MUCH ELECTRICITY WAS GENERATED BY SCE&G IN THE REVIEW PERIOD?

A. In the Review Period, SCE&G generated 26,664,040 megawatt hours ("MWH") of energy. Of this energy, the coal-fired plants generated approximately 51%, the combined-cycle units generated approximately 23%, the nuclear plant generated approximately 21%, the peaking gas turbines and hydro facilities generated approximately 4%, and the biomass fuel contribution portion of the cogeneration facility generated approximately 1%. Exhibit No. ___ (JKT-1)

provides a graphic display of how the Company's generation met our customers' demand for energy during this Review Period.

Q. PLEASE SUMMARIZE THE PERFORMANCE OF THE FOSSIL/HYDRO UNITS.

A. SCE&G's fossil units operated efficiently and dependably during the Review Period. Moreover, our fossil units received national recognition for their excellent heat rates. These measures will be covered later in my testimony. SCE&G's fossil units also had an 84.04% availability factor and a 1.97% forced outage rate during the Review Period. Additionally, it is worth noting that SCE&G's fossil units achieved a 95.4% availability factor during the peak summer load period between June 1st and September 30th of 2010.

Q. PLEASE DISCUSS THE MAJOR PROJECTS UNDERTAKEN DURING SCE&G'S PLANNED OUTAGES FOR THE PERIOD UNDER REVIEW.

A. As part of the Company's maintenance program, SCE&G undertook a number of major projects and maintenance activities during planned outages in this Review Period. A brief description of the major work completed is as follows:

- McMeekin Unit 2 came off line in the Spring of 2010 for a plant controls upgrade and turbine valve inspections.

- Jasper Unit 2 came off line in the Spring of 2010 for its first hot gas path inspection and a gas turbine compressor upgrade. During this same outage the Jasper Unit 4 generator stator was replaced. The generator has run extremely well since this replacement project was completed.
- Canadys Unit 3 also came off line in the Spring of 2010 for a generator rotor and stator rewind, major turbine inspection, a plant controls upgrade, and boiler pressure part replacement.
- Williams Station came off line in the Fall of 2010 for a major turbine inspection and an auxiliary boiler controls upgrade. In addition, SCE&G completed a one year inspection on the wet scrubber during this outage.
- Jasper Unit 1 came off line in the Fall of 2010 for its first hot gas path inspection and a gas turbine compressor upgrade. This marked the completion of hot gas path inspections and gas turbine upgrades on all three (3) of the Jasper gas turbines.
- Urquhart Unit 5 came off line in the Fall of 2010 for its first hot gas path inspection and a gas turbine compressor upgrade.
- Urquhart Unit 2 was also taken off line in the Fall of 2010 for a generator rotor & stator rewind along with turbine valve inspections.

Q. PLEASE DISCUSS ANY SIGNIFICANT FORCED OUTAGES FOR THE PERIOD UNDER REVIEW.

A. SCE&G's Fossil/Hydro Operations defines a significant forced outage as any forced outage in excess of seven (7) days. By this definition, Fossil/Hydro had one (1) significant forced outage during the Review Period. This outage occurred on Wateree Unit 2 in August 2010. The outage started on August 1, and the unit was returned to service on August 9. The cause of the outage was a leak in a superheater tube on the boiler. A significant amount of repair work was accomplished on superheater tubes during this eight (8) day outage.

Q. WHAT WAS SCE&G'S FOSSIL SYSTEM FORCED OUTAGE RATE FOR THE PERIOD UNDER REVIEW?

A. Fossil/Hydro experienced a system forced outage rate on its fossil units (including combined-cycle units) of 1.97% in the Review Period. The "forced outage rate" is the percentage of the total hours that generating units are forced out of service (for various reasons) compared with the total in-service hours plus forced outage hours for a period. For comparison purposes, the North American Electric Reliability Council ("NERC") national five year (2005-2009) average for forced outage rates for all units is 6.41%.

Q. PLEASE DISCUSS THE AVAILABILITY OF SCE&G'S FOSSIL PLANTS DURING THE REVIEW PERIOD.

A. SCE&G had an availability factor of its fossil plants (including combined-cycle units) of 84.04% during the Review Period. Availability factor is a measure of the actual hours that the generation units are available (overall readiness to provide electricity) divided by the total hours in the Review Period. Availability is not affected by how the unit is dispatched or by the demand from the system when connected to the grid. However, it is impacted by the planned and unplanned shutdown hours. For comparison purposes, the NERC national five year (2005-2009) average for availability from all units was 86.97%. SCE&G's availability factor was slightly lower than the NERC national five-year average due to the major planned outages previously discussed in my testimony. However, during the summer peak period, June 1, 2010 through September 30, 2010, SCE&G operated at an availability factor of 95.4%.

Q. PLEASE EXPLAIN "HEAT RATE" AND DESCRIBE THE HEAT RATE OF THE FOSSIL UNITS DURING THE REVIEW PERIOD?

A. Heat rate is a way to measure the thermal efficiency of a power plant. It is the number of British Thermal Units ("BTU") of fuel required to generate one (1) kilowatt-hour ("kWh") of electricity. The coal-fired steam unit average system heat rate for the period January 1, 2010 through December 31, 2010 is 9,885 BTU/kWh. McMeekin Station had the best heat rate in our system at 9,410

BTU/kWh followed by Cope Station at 9,423 BTU/kWh and Williams Station at 9,669 BTU/kWh. For comparison purposes, the *Electric Light & Power* national four year (2006-2009) average for heat rate for all coal-fired units is 10,525 BTU/kWh.

In the 2010 Heat Rate Rankings by *Electric Light & Power*, SCE&G was recognized for having three (3) of its six (6) coal-fired plants listed in the Top 25 most energy efficient coal-fired plants in the nation during calendar year 2009. Cope Station was ranked 5th; Williams Station ranked 9th; and McMeekin Station ranked 23rd. These three (3) plants represent 52% of the SCE&G coal-fired generating capacity.

Q. WHAT IMPROVEMENTS HAS THE COMPANY MADE TO REDUCE EMISSIONS AT ITS COAL-FIRED PLANTS?

A. Since 2007, the Company has undertaken several environmental related projects aimed at reducing emissions at SCE&G's coal-fired plants. The bulk of these projects were required by state and federal regulators to reduce emissions of air pollutants such as sulfur dioxide (SO_2) and nitrogen oxides (NO_x) from its coal-fired electric generating units.

In order to reduce emissions of SO_2, a flue gas desulphurization unit and related facilities ("Scrubber") were installed at Williams Station and Wateree Station. The Scrubber at Williams Station was placed into commercial service in February 2010 and the Wateree Scrubber was placed into commercial service in

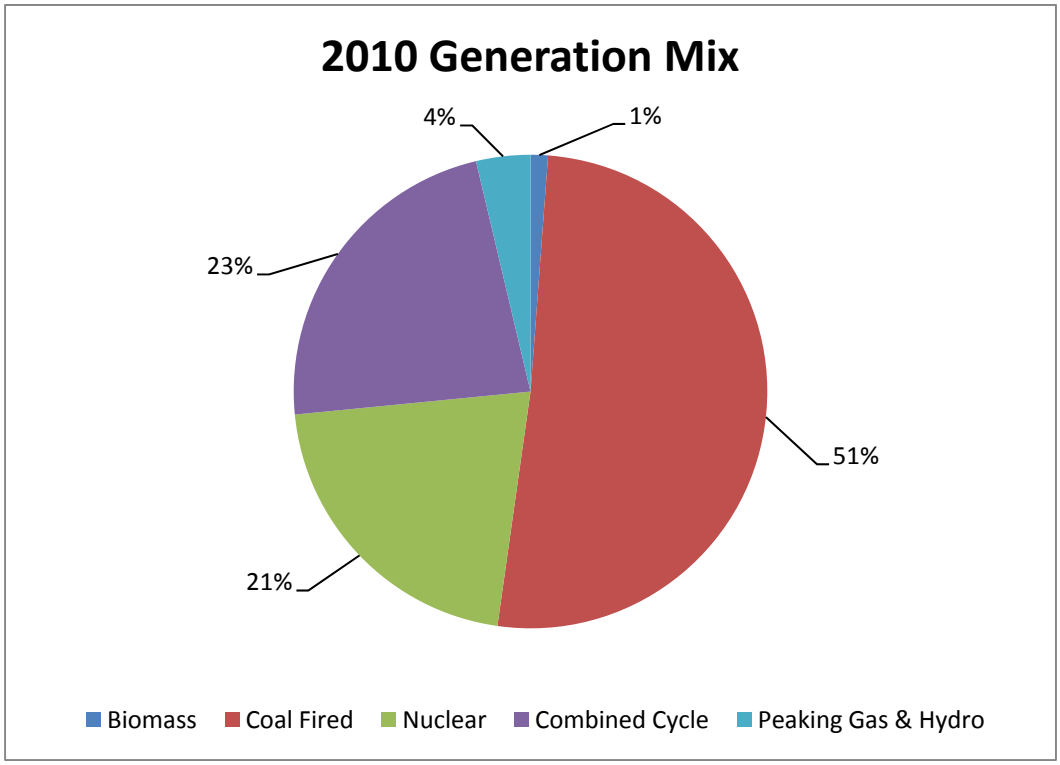
October 2010. Both the Williams and Wateree Scrubbers have been operating reliably and are capable of reducing SO_2 emissions from each plant by as much as 98%. Moreover, the Scrubbers have reduced SO_2 emissions from SCE&G's entire generation system by approximately 56% during the Review Period. These Scrubbers are also reducing mercury emissions from each plant. The mercury emissions reductions for Wateree and Williams are estimated to be in excess of 70%.

A selective catalytic reactor ("SCR") was installed at Cope Station in order to reduce emissions of NO_x. The SCR began full time operation on January 1, 2009 and has run well since that time. It is capable of reducing NO_x emissions at Cope Station by approximately 90%. SCE&G is also utilizing SCRs at the Williams and Wateree Stations along with previously installed low NO_x burners at the other coal-fired units to meet the state and federal air quality requirements for NO_x reductions.

SCE&G has also invested in a number of other smaller environmental projects and will continue to invest in environmental improvements on its system as required. At present, however, the Company does not have any plans to install additional scrubbers or SCRs on any of its other coal-fired units in its generation fleet.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.


2010 Generation Mix
4%
1%
23%
51%
21%
Biomass
Coal Fired
Nuclear
Combined Cycle
Peaking Gas & Hydro